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Where Bias Begins: a Snapshot of Police Officers' Beliefs About Factors that Influence the Investigative Interview with Suspects

Nicole M. Adams-Quackenbush[1,2] · Robert Horselenberg[1] · Peter J. van Koppen[1,3]

Abstract

The aim of the current study was to obtain a snapshot of police officer's beliefs about factors that may influence the outcome of the investigative interview with suspects. We created a 26-item survey that contained statements around three specific themes: best interview practices, confessions and interviewee vulnerabilities. Police officers ($N = 101$) reported their beliefs on each topic by indicating the level of agreement or disagreement with each statement. The findings indicated that this sample of officers held beliefs that were mostly consistent with the literature. However, many officers also responded in the mid-range (neither agree nor disagree) which may indicate they are open to developing literature-consistent beliefs of the topics. Understanding what officers believe about factors within the investigative interview may have implications for future training. It may also help explain why some officers do not consistently apply best practices (i.e. strong counterfactual beliefs) versus officers who reliably apply literature-consistent practices to their interviews (i.e. knowledge-consistent beliefs).

Keywords Investigative interview · Beliefs · Knowledge · Bias · Survey

Introduction

Decades of research has demonstrated that despite the best efforts of police trainers and academics, police interviewers do not always adhere to training on how to conduct an investigative interview, nor do officers always employ best practices to elicit optimal information from victims, witnesses and suspects (see Powell 2002). Researchers have examined police interview training programs (Clarke and Milne 2001; McGurk et al. 1993) and procedures (Blackstock et al. 2014) to improve interview performance and safeguard suspects' legal rights. Whilst those research endeavours have resulted in valuable insights for improving training programs, and creating interview processes and frameworks (e.g. PEACE; Milne and Bull 1999), the underlying problem may be less structural and more individual. That is, it could be that police officers rely more on personal or pseudoscientific beliefs concerning the investigative interview and less on their training and education in certain interview situations.

In this paper, we discuss how prior beliefs may disrupt the process of implementing training into evidence-based practice during the investigative interview. We then examine the knowledge of a sample of police officers regarding factors that can influence the investigative interview with suspects (i.e. training, practices, interviewee vulnerabilities and confessions), and compare the officers' beliefs to empirical evidence in the psycho-legal literature. We posit that officers who disagree with scientifically tested findings within the psycho-legal literature may be basing their responses on personal or pseudoscientific beliefs.

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✉ Nicole M. Adams-Quackenbush
Nicole.adams@maastrichtuniversity.nl

[1] Department of Criminal Law & Criminology, Maastricht University Faculty of Law, P.O. Box 616, 6200 MD Maastricht, Limburg, Netherlands

[2] Department of Psychology, University of Portsmouth, Portsmouth, UK

[3] Department of Criminal Law & Criminology, VU University Amsterdam, Amsterdam, Netherlands

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Beliefs

A belief is the acceptance that something is true, without empirical evidence to support it (Richardson 1996; Shermer 2011).[1] Beliefs can be obtained through information transfer (i.e. communicated by media or another person who holds the belief) or created within the individual's mind as a tool to understand incomprehensible phenomena or personal experiences (Shermer 2002). Moreover, the longer a belief is held, the stronger the belief becomes (Burns 2004; Marietta and Barker 2007). Even though a belief holds little credence outside an individual's perception, people often make decisions based solely on their beliefs—particularly in situations where the individual is faced with belief conflicting information (De Neys and Glumicic 2008), or when faced with increased cognitive load (e.g. stress or time constraints; Evans 2006). When making decisions in high-stress/high-cognitive load situations, individuals are more likely to come to their conclusions quickly and use very little of the information available to them (Keinan 1987; Trippas et al. 2013; Wastell et al. 2012). Belief-based decisions under pressure occur because the likelihood of evaluating all available information is reduced (Rassin et al. 2008). Instead, when fast decisions are required, low-effort belief heuristics can override knowledge and expertise (De Neys 2012; Kozhevnikov and Hegarty 2001; Shah and Oppenheimer 2008).

Some researchers and law enforcement practitioners have argued that using previous experience and heuristics can be beneficial in police investigations (see Snook and Cullen 2008). As a police officer gains experience in investigations, he or she will begin to develop a type of cognition specific to their line of work. Having cognitions specific to the task helps with fast and efficient decision-making and execution, and an automatic and intuitive decision-making technique is often beneficial in those types of situations (see Kahneman 2003). Notwithstanding the decision-making benefits of some belief-based heuristics (cf. Gigerenzer and Todd 1999), those types of cognitions can also act as a barrier to objective and logical thinking, which can lead to a biased behaviour (Kahneman 2003). For example, researchers have repeatedly demonstrated that police officer's beliefs about suspect guilt and stereotypical deception cues can influence the interviewing officer's behaviour towards the suspect (e.g. Meissner and Kassin 2002, 2004; Olson 2013). That is, in a criminal investigation, a judgement about a suspect's guilt may be based on stereotypical beliefs about how guilty or deceptive people behave during questioning (Vrij 1993). Likewise, an interviewer who believes only guilty people confess, and simultaneously holds a guilt judgement towards a suspect, may be more likely to push for a confession (Kassin 2014; Kassin et al. 2003; Narchet et al. 2011).

It is important to note that some police officers hold counterfactual beliefs about human behaviour because they have been given information based on outdated and pseudoscientific beliefs (see Lilienfeld and Landfield 2008). For example, some police officers believe that isolating a suspect in a small interrogation room and interrupting a suspect's denials are good interview practices for eliciting a confession (Kassin et al. 2007). Through research endeavours, much has been learned about interviewing suspects, witnesses and victims. For example, more ethical interviewing practices were created (e.g. information-gathering interviews), frameworks were established to help guide police officers to conduct effective and professional interviews (e.g. PEACE; see Crime Academy and Review Group 2016; Van der Sleen 2009), and more effective information-eliciting techniques were developed (e.g. cognitive interview; Fisher and Geiselman 2010).

Beliefs as Barriers to Evidence-Based Practice in Investigative Interviews

One way to combat the use of pseudoscience and personal beliefs in policing is through the use of evidence-based practices. Evidence-based practice involves using critically appraised and scientifically tested methods in applied settings (Telep 2017). Some researchers have posited that the opposite of a belief is knowledge, which is the attitude towards information that is known to be true and is based on fact and evidence (e.g. formal learning, presentation of information to be stored in memory is testable; Dienes and Perner 1999). Over the last 30 years, the investigative interview has been the subject of extensive focus for researchers and practitioners who have sought to understand how miscarriages of justice occur (see De Roos and Nijboer 2011; Griffin 2001), how interviewers ascertain interviewee veracity (e.g. Mann et al. 2004), and what interviewer tactics elicit the most reliable information from interviewees (e.g. Hakkanen et al. 2009).

Intuitively, it would seem that simply providing police officers with training based on empirically tested findings should be enough to combat any personal or pseudoscientific beliefs; however, this is not the case. Research conducted within the educational and clinical literature had demonstrated that changing behaviours and integrating knowledge into practice requires that some barriers in cognition must be overcome. First, there must be a desire to learn or a positive attitude towards the new information. Second, there needs to be discontent with any current knowledge on the subject. This means that the individual must accept that their current

[1] The distinction between beliefs and knowledge is not simplistic as presented in this paper (see Southerland, Sinatra and Mathews 2001). Beliefs and knowledge have a complex relationship in that one can acquire knowledge and then incorporate it into their belief system. Thus, the definition that beliefs are untested assumptions would no longer apply. This is a longstanding debate within many disciplines and outside the scope of the present study. For that reason, we adopt the definitions that keep those cognitive phenomena separate.

knowledge is no longer sufficient to explain the topic. Third, the new knowledge must appear immediately plausible, credible and reliable in its explanation of an event and similar events. Finally, and most importantly, the new knowledge cannot conflict with pre-existing beliefs or personally held conceptions about the topic (Posner et al. 1982; Richardson 1996).

Once knowledge is acquired, there is no guarantee that those who possess the information will always use it at the appropriate time. Attitude about the obtained knowledge is likely an important factor to accepting the information (Alexander et al. 1998). For example, a police officer with prior intuitive or pseudoscientific beliefs about what works in an investigative interview may be resistant to new knowledge about effective techniques—especially if they seem counter intuitive or in opposition to his or her experiences. Moreover, researchers have demonstrated that presenting contradictory information to existing beliefs can strengthen the intensity of the belief if the individual is not ready to accept the new information (Batson 1975; Nickerson 1998).

Despite an extensive literature on scientifically tested factors that can affect the investigative interview, pseudoscientific and intuitive beliefs are still prevalent within police organisations (Lilienfeld and Landfield 2008; Chaplin and Shaw 2016). Retrospective examinations of investigations often reveal that untested or intuitive interview techniques (e.g. Reid technique), pre-existing beliefs, as well as confirmatory thinking by the police are where things start to go wrong with cases (Rossmo 2006). For that reason, it is important to understand interviewer beliefs and knowledge about factors that could influence the outcome of the interview.

Present Study

Underlying beliefs about factors in the investigative interview, whether they were acquired via the transfer of pseudoscientific information, anecdotal experience or intuition can lead to problematic practice within interview settings (Lilienfeld and Landfield 2008). The present study surveyed police officers who have conducted investigative interviews to determine if their knowledge is in line with current empirical evidence in the literature. By gaining this insight, we may begin to understand how to better approach interviewer training for effective knowledge transfer. To achieve this, we created a questionnaire comprised of statements about factors that are important to the effectiveness and outcomes of the interview.

We did not hypothesise any findings for this exploration of police officer's beliefs; however, we suggest that a pattern of response may be indicative of belief strength or knowledge acquisition. That is, officers who respond with strong agreement to statements that contradict current findings may hold strong beliefs on that topic. As demonstrated by the aforementioned research, individuals who hold such beliefs could be more resistant to acquiring new knowledge and integrating that knowledge into practice. We also suggest that officers who respond in high agreement with empirically tested statements may have accepted the information presented in the literature. Additionally, officers who respond more moderately (in the mid-range), may be indicating that they have not fully accepted the empirical support for the statements; however, they may not be ready to fully dismiss the information either. There are many reasons for mid-range responding on surveys (see Sturgis et al. 2012); however, in the context of the present survey, mid-range responding would be a promising result as those officers may be more receptive to balanced arguments aimed at positively changing their perception of the literature (Alexander et al. 1998).

Method

Participants

Police officers were recruited via the global and professional contacts of the authors and colleagues, and snowball sampling was used to disseminate the survey. Officers from the Netherlands ($n = 79$), the UK ($n = 16$) and North America ($n = 6$) participated in the study ($n = 101$; male $n = 49$, female $n = 42$; $M_{Age} = 46.17$, $SD = 8.84$). Participating officers had many years of experience ($M = 22.6$ years, $SD = 10.25$) with 4 years minimum experience to a maximum of 45 years. Officers' highest level of formal education spanned from vocational training to post-graduate specialisation: basic vocational (47.5%), high school (10.9%), university (25.7%), masters (10.9%), specialisation or PhD (2%) and other unspecified (3%).

To participate in the study officers must have conducted at least one investigative interview with a suspect in their career. All participating officers reported having conducted frequent interviews throughout their years of service: one interview per month (29.7%), two per month (19.8%), three per month (18.8%), four per month (5.9%) and five or more per month (25.7%). Most officers also reported having received specialised interview training (72.3%) at least once during their career.

Materials

A survey comprised of 26 statements was created for this study (see Table 1). The statements within the survey were operationalised as either consistent or contradictory with the current literature on investigative interviewing. The statements focused on three specific themes: best practices for interviewing, confessions and interviewee vulnerabilities. Each statement reflected findings from empirical evidence in

Table 1 Survey statements and police officer's overall median scores (all countries combined). Scale of agreement is 1 (strongly disagree) to 10 (strongly agree)

Best practice statements	Median score
1. Preparing interview questions in advance can stifle the natural flow of the interview. (R)	3
2. Trained officers can distinguish between truth and lies with high accuracy. (R)	3
3. It is better to explicitly state your disbelief in a suspect's answer to get to the truth more quickly. (R)	3
4. Having a theory about who committed the crime and the motive is useful when conducting an investigative interview.	4
5. Suspects should be confronted with the evidence against them early on in the interview. (R)	1
6. It is good practice to tell the suspect what you think happened and seek confirmation. (R)	4
7. It is better to imply disbelief in a suspect's answer through body language than to explicitly state it. (R)	4
8. Interviewers should summarise the suspect's answers aloud and check that the summary is correct.	3
9. Information gathering is the primary objective when conducting investigative interviews.	4
10. It is good practice to prepare interview questions in advance	4
11. Knowing all the facts of a case makes for a better interview.	3
12. An effective interview tactic is to let the suspect know that you think they are guilty. (R)	5
Confession Statements	
1. Implied threats or promises can lead to true confessions. (R)	4
2. Explicit promises of leniency can lead to true confessions.	3
3. A confession must be true if it contains accurate details of the crime. (R)	3
4. Sympathy from the interviewer can lead people to infer leniency, which may lead them to falsely confess.	2
5. Innocent people never give false confessions voluntarily. (R)	4
6. Police interviewers can tell the difference between a false and true confession. (R)	4
7. Innocent people do not confess to crimes. (R)	5
Vulnerability Statements	
1. Hunger and poor sleep can impair judgement and decision-making in suspects.	4
2. Signs of nervousness and anxiety are good indicators of guilt. (R)	4
3. Innocent suspects are more likely to waive their right to have a lawyer present.	3
4. Mentally ill people are more vulnerable to suggestion during investigative interviews than mentally healthy persons	4
5. Adolescents are more vulnerable than adults to suggestion during investigative interviews.	3
6. Signs of nervousness and anxiety are good indicators of lying. (R)	4
7. Persons with developmental problems are vulnerable to suggestion during investigative interviews.	4

(R) denotes a negatively worded statement that has been reverse coded for agreement

the psycho-legal literature and was either positively or negatively worded. Participants were asked to rate their agreement with each statement on a 10-point scale from strongly agree (1) to strongly disagree (10), with anchors only at 1 and 10. Prior to distribution, the survey was examined by two subject matter experts for clarity and plausibility of the statements. The survey was created in both English and Dutch, and both versions are identical in meaning and content (see Table 1 and supplemental material).

Procedure

Officers were invited to complete the survey via a link to the Qualtrics online survey platform. Once informed consent to participate was given, officers were asked if they had conducted investigative interviews with suspects during their career. Officers who answered 'no' to this question were directed to the end of the survey. There, it was explained that the study required officers who had experience interviewing suspects and they were thanked for their time. Officers who answered 'yes' to the inclusion criteria question were permitted to proceed with the study. Next, participating officers completed nine demographic questions to collect the following information: age, sex, country, tenure, rank/title, number of interviews per month, education level and specialised interview training.

Once the demographic information was obtained, the officers received instructions on completing the survey. The instructions began with an assurance that the survey was not a

test and that officers should respond to each statement without too much thought. Officers completed the 26-item survey by indicating their agreement/ disagreement with each statement. After the statements were answered, officers were asked to provide a response to an open question about the presence of legal counsel in the interview room. This item was included as part of a separate project and the findings are not presented as part of the current study. Finally, officers were thanked for their participation and directed out of the survey platform.

Scoring and Analysing Responses

Responses to the statements contained in the survey were recorded on a 1 to 10 scale to give distance in the extremes for the analysis of biased responding (i.e. strongly agree or disagree). When evaluating the responses by theme and overall pattern of responding, negatively worded items were reverse-scored prior to analysis. Therefore, items scored as 1 (strongly disagree) to 10 (strongly agree) were changed as follows: 1 = 10, 2 = 9, 3 = 8, 4 = 7, 5 = 6, 6 = 5, 7 = 4, 8 = 3, 9 = 2, 10 = 1.

The responses on the 10-point scale were then indexed into categories and assigned a score (indicated in the parentheses) from 1 to 5: disagree (1) = response scores of 1 and 2, somewhat disagree (2) = 3 and 4, neither agree nor disagree (3) = 5 and 6, somewhat agree (4) = 7 and 8 and agree (5) = 9 and 10. This step was taken to reduce the data to a 5-point Likert type scale to gain a more concise picture of how the police officers' responses were clustered on the scale of agreement. The scores from each category were then used to calculate a response mean for each theme and the overall survey.

Results

The overall survey responses were positively skewed towards agreement with the literature-consistent statements. More officers chose agreement with the statements (52.3%) than disagreement (23.7%), χ^2 (1, n = 101) = 16.70, p = .00, 95% CI = [.23, .52], whilst 24% of the officers chose the mid-range response (neither agree or disagree; see Fig. 1).

When the responses were analysed by theme, more insight was gained regarding the topics in which officers have the most knowledge (see Fig. 2). The majority of the sample somewhat or strongly agreed with statements on confessions (62%); however, agreement was a bit lower for best practices (49.5%) and interviewee vulnerabilities (47.4%; see Fig. 2). When the proportions for officers who agreed with the statements were compared to officers who disagreed with the statements, significant differences emerged across all themes with officers agreeing more than disagreeing: best practice, χ^2 (1, n = 101) = 11.53, p = .000, 95% CI = [.38, .10]; interviewee vulnerabilities, χ^2 (1, n = 101) = 8.00, p = .004, 95% CI = [.27, .47]; confessions, χ^2 (1, n = 101) = 39.38, p = .000, 95% CI = [.17, .61].

A Kruskal-Wallis test indicated that there was also a small difference between officers' responses on the theme of vulnerability. The UK officers' (mean rank = 67.56) significantly differed in their responses on vulnerability from the North American (mean rank = 58.25) and Dutch police (mean rank = 47.09), χ^2 (2, n = 101) = 6.90, p = .03, η^2 = .07. There were no differences on the theme of 'best practices', χ^2 (2, n = 101) = 3.46, p = .18 or confessions, χ^2 (2, n = 101) = 3.46, p = .16. It should be noted that the small sample of US police officers and the small effect size do not allow for definitive conclusions to be drawn regarding any differences by nationality. These results were reported within the overall exploratory analysis as a possible avenue for future evaluations within this research.

Discussion

Police officers from the Netherlands, the UK and North America were surveyed about factors that could influence interview outcomes to ascertain their beliefs on the themes of best practices, confessions and vulnerabilities. Although the officers in each country (the UK, Netherlands and North America) may have received different interview training and may use different interview techniques (e.g. information gathering versus accusatory techniques), the sample who participated in the survey was fairly homogeneous in their responses. Only one difference emerged among the themes, and it was on the topic of vulnerability. The UK police officers responded with a significantly higher level of agreement than the Dutch and North American officers. This may be due to the extensive training that UK officers receive on interviewee vulnerabilities (see Crime Academy and Review Group 2016).

Overall, the participating officers responded with the highest agreement for confession statements. That is not surprising as the topic of confessions has a large and longstanding literature base—particularly false confessions (see Kassin et al. 2007). Knowledge in that area is evident in the strong level of disagreement for the negatively worded statements on confession and innocence, as well as threats and promises. Moreover, cases that are reviewed for miscarriages of justice often become high-profile news and receive increased media and public attention.

There was a trend of mid-range responding on each topic. Mid-range responding could be understandable for topics where there are contradictory findings in the literature; however, efforts were made to formulate the statements for knowledge with strong supporting evidence. Officers may have also used the mid-range responses to answer in a socially desirable manner; however, efforts were also made in the survey instructions to inform officers that this was not a test and that

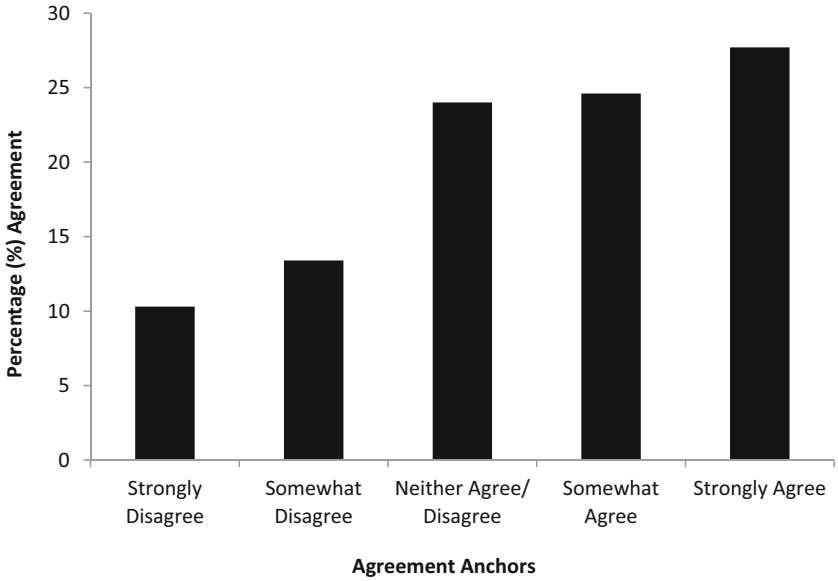

Fig. 1 Overall percentage of police officer agreement with the 26 statements contained in the survey

we were seeking their beliefs. A likely scenario is that the officers may have used the mid-range to indicate conditional agreement or disagreement (Sturgis et al. 2012). By choosing to 'somewhat agree' with the statements, officers may be indicating their knowledge and acceptance of empirical findings on the topic, whilst recognising those findings do not hold true in all situations. For example, when the officers overall median scores were examined (10-point scale), responses to the statement 'It is good practice to prepare interview questions in advance' was met with a high level of agreement ($x = 8$). However, the officers responded with mid-range agreement ($x = 6$) to the statement, 'Preparing interview questions in advance can stifle the natural flow of the interview'. This may be an acknowledgement of the benefits to having some interview questions prepared but knowing also that if not done properly, it can stifle the interaction.

Officers may have also used the mid-range to indicate that they do not have enough knowledge on the topic to respond at either extreme (agree or disagree). Thus, the middle range becomes an option for 'I'm not sure'. In the context of this study, any motive for the mid-range responses creates an opportunity for conceptual change. Alexander et al. (1998) found that individuals with a moderately favourable stance towards a topic, high interest and some knowledge were more susceptible to be persuaded by literature. Thus, the officers who responded in the mid-range may not have formed strong beliefs about the topics and could be susceptible and open to acquiring more knowledge on the subjects.

The high level of agreement with the statements is a promising indication that police officers' beliefs for this particular sample are in-line with current knowledge and consensus in the academic literature. However, the findings from this study contradict the findings of Chaplin and Shaw (2016). In that study, the authors found that a small sample of UK officers held just as many counterfactual beliefs to the literature as knowledge on the topic of police interrogations and

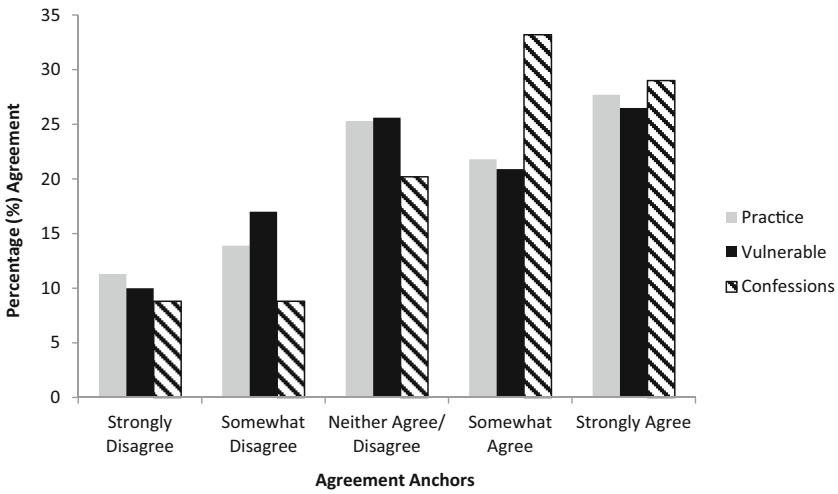

Fig. 2 Percentage of police officer agreement with the 26 survey statements by theme: best interview practices, confessions and interviewee vulnerabilities

procedures. Although the present study did not use the same statements as Chaplin and Shaw, the themes around the questions appear to be similar (confessions, practice and vulnerabilities). Whilst the majority of the sample in the present study is Dutch, there was no difference in overall response medians by country of origin, and UK officers responded with higher agreement on the theme of vulnerabilities.

Limitations and Future Research

The difference in the findings between the present study and Chaplin and Shaw's (2016) study may be due to sample demographics. The Chaplin study surveyed 44 officers from a small rural department in the UK. The current study recruited participants via professional contacts with the authors and their colleagues and did not exclusively target any one country or region. Thus, the participating officers may be more knowledgeable with the literature. For that reason, we cannot corroborate the claim that there is a knowledge-science gap for officers in the UK or elsewhere. A wider scale survey of officers who conduct interviews is needed to gain a more accurate view of any beliefs versus knowledge disparity. Additionally, to avoid making inferences about officer belief versus knowledge, officers should be asked whether he or she received explicit information about the topic or statement or if the officer is responding based on experience or intuition.

Whilst the current study acquired a snapshot of officer's beliefs, we cannot make claims regarding how the beliefs translate into practice. Based on the theoretical underpinnings of belief-based heuristics, we can posit that officers who hold counterfactual beliefs to the current literature may be more likely to resort to those beliefs under the constraints the pressure experienced in the investigative interview. We can also speculate under this same theory that officers who hold beliefs consistent with the current literature are more likely to behave with that knowledge in mind. There is evidence in the literature that increased cognitive load and time constraints can interfere with the application of knowledge into practice (Kozhevnikov and Hegarty 2001); however, there is no information in the literature regarding knowledge-consistent beliefs. Therefore, it is uncertain how officers who hold knowledge-consistent belief heuristics will perform under increased pressure. This gap in the literature needs to be addressed to gain more understanding of how beliefs can influence practice.

Conclusion

The findings in the present study indicate that a highly experienced and educated sample of officers from three countries have adequate knowledge of empirically tested phenomena that may influence interview outcomes with suspects. Therefore, those officers are potentially more likely to apply this knowledge into practice as opposed to officers who hold strong beliefs that are counterfactual to the current literature. Officers who responded in the mid-range (neither agree nor disagree) with the statements are most likely the ones that should be identified and approached by trainers and academics. Personal or pseudoscientific beliefs can be a barrier to implementing knowledge into practice for police officers, thus, focused training for officers who do not hold strong beliefs in either direction may bring their beliefs more in line with current scientific knowledge about interview factors. This in turn could implement positive change towards a more effective interview. However, further research is needed to determine how beliefs and knowledge translate into police interview practice under varying levels of pressure and cognitive load.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflicts of interest.

References

Alexander PA, Murphy PK, Buehl MM, Sperl CT (1998) The influence of prior knowledge, beliefs, and interest on learning from persuasive text. Natl Read Conf 47:167–181

Batson DC (1975) Rational processing or rationalization? The effect of disconfirming information on a stated religious belief. J Pers Soc Psychol 32:176–184. https://doi.org/10.1037/h0076771

Blackstock, J., cape, E., Hodgson, J., Ogorodova, A., Spronken, T., & Vanderhallen, M. (2014). Inside police custody: training framework on the provisions of suspects' rights. Cambridge, UK: Intersentia Ltd.

Burns BD (2004) Heuristics as beliefs and as behaviors: the adaptiveness of the "hot hand". Cogn Psychol 48:295–331. https://doi.org/10.1016/j.cogpsych.2003.07.003

Chaplin C, Shaw J (2016) Confidently wrong: police endorsement of psych-legal misconceptions. J Police Crim Psychol 31:208–216. https://doi.org/10.1007/s11896-015-9182-5

Clarke C, & Milne R (2001) National evaluation of the PEACE investigative interviewing course [report no. PRAS/149]. London, UK: Home Office

Crime Academy and Review Group (2016). Investigative interviewing policy. London, UK: Metropolitan Police

De Roos TA, Nijboer JF (2011) Wrongfully convicted: how the Dutch deal with the revision of their "miscarriages of justice". Crim Law Reform 22:567–591. https://doi.org/10.1007/s10609-011-9159-8

De Neys W (2012) Bias and conflict: a case for logical intuitions. Perspect Psychol Sci 7:23–38. https://doi.org/10.1177/1745691611429354

De Neys W, Glumicic T (2008) Conflict monitoring in dual process theories of thinking. Cognition 106:1248–1299. https://doi.org/10.1016/j.cognition.2007.006.002

Dienes Z, Perner J (1999) A theory of implicit and explicit knowledge. Behav Brain Sci 22:735–808. https://doi.org/10.1017/50140525X99522188

Evans JStBT (2006) The heuristic-analytic theory of reasoning: extension and evaluation. Psychon Bull Rev 13:378–395. https://doi.org/10.3758/BF03193858

Fisher RP, Geiselman RE (2010) The cognitive interview method of conducting police interviews: eliciting extensive information and promoting therapeutic jurisprudence. Int J Law Psychiatry 33:321–328. https://doi.org/10.1016/j.ijlp.2010.09.004

Gigerenzer G, & Todd PM (1999) Fast and frugal heuristics: the adaptive toolbox. In G. Gigerenzer, P. M. Todd, & The ABC Research Group, Evolution and cognition: simple heuristics that make us smart (pp. 3–34). New York, NY: Oxford University Press

Griffin L (2001) The correction of wrongful convictions: a comparative perspective. Am Univ Int Law Rev 16:1241–1308

Hakkanen H, Ask K, Kebbell M, Alison L, Granhag PA (2009) Police officers' views of effective interview tactics with suspects: the effects of weight of case evidence and discomfort with ambiguity. Appl Cogn Psychol 23:468–481. https://doi.org/10.1002/acp.1491

Kassin SM (2014) False confessions: causes, consequences, and implications for reform. Policy Insights Behav Brain Sci 1:112–121. https://doi.org/10.1177/2372732214548678

Kassin SM, Goldstein CC, Savitsky K (2003) Behavioral confirmation in the interrogation room: on the dangers of presuming guilt. Law Hum Behav 27:187–203. https://doi.org/10.1023/A:1022599230598

Kassin SM, Leo RA, Meissner CA, Richman KD, Colwell LH, Leach AM, La Fon D (2007) Police interviewing and interrogation: a self-report survey of police practices and beliefs. Law Hum Behav 31:381–400. https://doi.org/10.1007/s10979-006-9073-5

Kahneman D (2003) A perspective on judgement and choice: mapping bounded rationality. Am Psychol 58:697–720. https://doi.org/10.1037/0003-066X.58.9.697

Keinan G (1987) Decision making under stress: scanning of alternatives under controllable and uncontrollable threats. J Pers Soc Psychol 52:639–644. https://doi.org/10.1037//0022-3514.52.3.639

Kozhevnikov M, Hegarty M (2001) Impetus beliefs as default heuristics: dissociation between explicit and implicit knowledge about motion. Psychon Bull Rev 8:439–453

Lilienfeld SO, Landfield K (2008) Science and pseudoscience in law enforcement: a user-friendly primer. Crim Justice Behav 35:1215–1230. https://doi.org/10.1177/0093854808321526

Mann, S., Vrij, A., $ Bull, R. (2004). Detecting true lies: police officers' ability to detect suspects' lies. J Appl Psychol, 89, 137–149. doi: https://doi.org/10.1037/0021-9010.89.1.137

Marietta M, Barker DC (2007) Values as heuristics: core beliefs and voter sophistication in the 2000 republican nomination contest. J Elections, Public Opin Parties 17(1):49–78. https://doi.org/10.1080/13689880601132554

McGurk BJ, Carr MJ, & McGurk D (1993) Investigative interviewing courses for police officers: an evaluation [paper no. 4]. London, UK: Home Office

Meissner CA, Kassin SM (2002) "He's guilty!": investigator bias in judgements of truth and deception. Law Hum Behav 26:469–480. https://doi.org/10.1023/A:1020278620751

Meissner, C. A., & Kassin, S. (2004). You're guilty, so just confess! In G.D. Lassiter (ed) Interrogations, confessions, and entrapment (pp. 85–106). Boston, MA: Springer

Milne B, & Bull R (1999) Investigative interviewing: psychology and practice. Chichester, UK: John Wiley & Sons

Narchet FM, Meissner CA, Russano MB (2011) Modeling the influence of investigator bias on the elicitation of true and false confessions. Law Hum Behav 35:452–465. https://doi.org/10.1007/s10979-010-9257-x

Nickerson RS (1998) Confirmation bias: a ubiquitous phenomenon in many guises. Rev Gen Psychol 2:175–220. https://doi.org/10.1037/1089-2680.2.2.175

Olson EA (2013) "You don't expect me to believe that, do you?" expectations influence recall and belief of alibi information. J Appl Soc Psychol 43:1238–1247. https://doi.org/10.1111/jasp.12086

Posner GJ, Strike KA, Hewson PW, Gertzog WA (1982) Accommodation of a scientific conception: toward a theory of conceptual change. Sci Educ 66:211–227. https://doi.org/10.1002/sce.3730660207

Powell MB (2002) Specialist training in investigative and evidential interviewing: is it having any effect on the behaviour of professionals in the field. Psychiatry Psychol Law 9:44–55. https://doi.org/10.1375/pplt.2002.9.1.44

Rassin E, Muris P, Booster E, Kolsloot I (2008) Indecisiveness and informational tunnel vision. Personal Individ Differ 45:96–102. https://doi.org/10.1016/j.paid.2008.03.006

Richardson V (1996) The role of attitudes and beliefs in learning to teach. In J. Sikula (Ed.), Handbook of research on teacher education (pp. 102–119). New York, NY: Simon & Schuster/ Macmillan

Rossmo K (2006) Criminal investigative failures: avoiding the pitfalls. FBI Law Enforcement Bulletin 75:1–8

Shah AK, Oppenheimer DM (2008) Heuristics made easy: an effort-reduction framework. Psychol Bull 134:207–222. https://doi.org/10.1037/0033-2909.1342.2.207

Shermer M (2002) Why people believe weird things. New York, NY: Henry Holt and Company, LLC

Shermer M (2011) The believing brain. New York, NY: Times Books/ Henry Holt and Company, LLC

Snook B, Cullen RM (2008) Bounded rationality and criminal investigations: has tunnel vision been wrongfully convicted? In: Rossmo DK (ed) Criminal investigative failures. CRC Press, Boca Raton, FL, pp 71–98

Southerland, S. A., Sinatra, G. M., & Matthews, M. R. (2001). Belief, knowledge, and science education. *Educational Psychology Review, 13*, 325–351. https://doi.org/10.1023/A:101191381

Sturgis P, Roberts C, Smith P (2012) Middle alternatives revisited. Sociol Methods Res 43:15–38. https://doi.org/10.1177/0049124112452527

Telep CW (2017) Police officer receptivity to research and evidence-based policing: examining variability within and across agencies. Crime Delinq 63:976–999. https://doi.org/10.1177/0011128716642253

Trippas D, Handley SJ, Verde MF (2013) The SDT model of belief bias: complexity, time, and cognitive ability mediate the effects of believability. J Exp Psychol Learn Mem Cogn 39:1393–1402. https://doi.org/10.1037/a0032398

Van der Sleen J (2009) A structured model for investigative interviewing of suspects. In R. Bull, T. Valentine, & T. Williamson (Eds.), Handbook of psychology of investigative interviewing. West Sussex, UK: Wiley & Sons Ltd.

Vrij A (1993) Credibility judgements of detectives: the impact of nonverbal behavior, social skills, and physical characteristics on impression formation. J Soc Psychol 133:601–610. https://doi.org/10.1080/00224545.1993.9713915

Wastell C, Weeks N, Wearing A, Duncan P (2012) Identifying hypothesis confirmation behaviours in a simulated murder investigation: implications for practice. J Investig Psychol Offender Profiling 9:184–198. https://doi.org/10.1002/jip.1362